UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/549,782	04/14/2000	Stefan Eckart	0100.0000730	8961

23418 7590 03/10/2004

VEDDER PRICE KAUFMAN & KAMMHOLZ
222 N. LASALLE STREET
CHICAGO, IL 60601

EXAMINER	
LEE, TIMOTHY L	
ART UNIT	**PAPER NUMBER**
2662	

DATE MAILED: 03/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/549,782	Applicant(s) ECKART ET AL.	
	Examiner Timothy Lee	Art Unit 2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 January 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-60* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-60* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-35 and 43-60 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Regarding claims 1, 33, and 43, all three of these independent claims mention "determining a first lowest bit occurrence." In reading the specification, it is still unclear as to what is meant by the "lower bit occurrence." The third paragraph on page 9 of the specification first mentions bits and number of bits. The first full paragraph and third full paragraph on P. 10 mention "the earliest possible occurrence of a packet," but it does not relate the "occurrence" to a "lowest bit." Also, in line 27 on P. 10, it is unclear as to how a data packet "may occur between packet 507 and 508." It is difficult to understand why the "occur" is being used in this position. Typically, packets can be formed, transmitted, received, etc., but it is hard to imagine a packet "occurring." The third paragraph on P. 11 finally relates the bits to the verb "occur," but it is still unclear what a "lowest bit" is and how exactly it has an "occurrence." Line 21 of P. 11 only mentions a "last bit" of a payload occurring on some point on the graph, not a "lowest bit." In the fourth paragraph of P. 12, the words "lowest bit occurrence" are seen together, but as

mentioned, the previous discussion does not yield a clear enough idea of what is to be meant by this.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1, 2, 4, 6-16, 19, 32, 33, 35, 37, 43, 44, 46, 47, 48 rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al. (US 6,188,700).

7. Regarding claims 1, 33, and 43, Kato et al. discloses a method and apparatus for encoding MPEG signals and transmitting the signal. Fig. 3 shows an example of changes in the bit occupancy quantity of the buffers of the encoder system in conformity with the VBV model (obtaining a first input data stream). In Fig. 3, the area on the left side of line c-d shows changes in the bit occupancy quantity of the encoder buffer. The horizontal axis t expresses the lapse of time while the vertical axis expresses the cumulative value of the amount of bits of the bit stream output from the encoder buffer up to a certain amount of time. See col. 3, lines 4-30. ETS(n) expresses the time point at which the n-th encoded picture A(n) is encoded (obtaining first time stamp information). See col. 3, lines 57-65. The delay of the buffer intuitively depends on the bit occupancy quantity in the buffer—naturally, the higher the occupancy quantity, the higher the delay (buffer delay information). See at least col. 4, lines 16-18. The start time do is calculated

as shown in col. 4, lines 25-30 from the bit rate R and the bit occupancy quantity b0 at the start of decoding of the decoder buffer. See col. 4, lines 24-30. As shown in Fig. 3, the start time do falls within the lines c-d and a-b. The line c-d has a slope that expresses the constant output bit rate R from the encoder buffer 13. See col. 3, lines 33-36. The width between the line c-d and the line a-b in the direction of vertical axis expresses the size B of the encoder buffer. See col. 3, lines 40-42. As clearly shown in Fig. 3, these "limits" c-d and a-b are analogous to the "lowest bit occurrence" and the "highest bit occurrence," where a-b is an upwardly shifted version of c-d. From the lines c-d and a-b, one can determine the "first earliest time constraint" or the "first latent time constraint" by reading where the points on the graph that touch the lines c-d and a-b. Kato et al. does not expressly disclose that these "limits" c-d and a-b are determined by the buffer delay and time stamp information. However, it would have been obvious that these "limits" were derived from such information—the start time is already determined through the time point at which the first picture arrives and through the transfer rate and the buffer occupancy, and the limits c-d and a-b are created around this start time. One would have been motivated to do this because Kato et al. discloses that the encoder system must encode and transmit data carefully enough to prevent overflow or underflow of the decoder buffer. If the step-like locus on the side of the decoder system is between the line c-d and the line e-f so as not to exceed the buffer B, the decoder system can stably decode pictures. On the contrary, if the locus exceeds either line, then underflow or overflow will occur. See col. 6, lines 8-16. These are the same goals presented for the claimed invention.

8. Regarding claims 2 and 44, as shown in Fig. 3, the lines c-d and a-b increase linearly with respect to time.

9. Regarding claims 4 and 7, Kato et al. discloses that Fig. 3 shows an example for a constant bit rate system. See col. 3, lines 33-37. Kato et al. also discloses that the system can be adapted to handle a variable rate system. See at least col. 7, line 65-col. 8, line 21.

10. Regarding claims 6, 8, and 9, the term "frame rate" is applied commonly to video, and Fig. 3 deals with an encoding/decoding example that deals with constant rates. See at least col. 3, lines 57-65.

11. Regarding claim 10, through the rate of the input stream and the buffer capacity/occupancy, it can be determined what the buffer delay is going to be. Thus, it is inherent in the carrying of the input stream that it will also include the information needed to find buffer delay information.

12. Regarding claim 11, the data stream, as mentioned previously, is a video stream. See col. 2, lines 23-34.

13. Regarding claim 12, as mentioned previously, the line c-d is separated by line a-b by a distance of B, so the highest bit occurrence is found by shifting the lowest bit occurrence.

14. Regarding claim 13, Kato et al. discloses that although not shown, an encoded bit stream of an audio signal is also inputted to the multiplexer 14. The multiplexer 14 performs system encoding and multiplexing of a plurality of input bit streams, and outputs multiplexed streams from terminal 17. See col. 1, lines 62-67. The techniques described in processing the video stream can also be applied to the processing of the audio stream.

15. Regarding claims 14, the term "frame rate" is applied commonly to video, and Fig. 3 deals with an encoding/decoding example that deals with constant rates. See at least col. 3, lines 57-65.

16. Regarding claims 15 and 46, Kato et al. does not expressly disclose dividing the audio and video streams into packets and combining the packets to provide one output stream. However, it would have been obvious to divide these streams into packets for transmission on one stream. One would have been motivated to do this because packetizing the information is an efficient way of sending data over long distances, where the header information can be used in directing the packet.

17. Regarding claims 16 and 47, Kato et al. does not expressly disclose combining the order determined by the first earliest time constraint and the first latest time constraint, and likewise for the second stream. However, it would have obvious to arrange the packets in such a way. One would have been motivated to do this because it would be more efficient to send the packets with higher needs to be sent first before the packets that can be sent later.

18. Regarding claims 19 and 48, as mentioned previously, Kato et al. discloses finding a start time. See col. 4, lines 24-30.

19. Regarding claim 32, Kato et al. discloses the use of MPEG standards as a possible application. See col. 2, lines 23-46.

20. Claims 3, 5, 35, and 36-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato et al. in view of VanDeusen et al. (US 6,598,172) and in light of the rejection to claim 1.

21. Regarding claim 36, Kato et al. discloses that data can be multiplexed from various input streams (multiplexing the packets from the plurality of data streams). See col. 1, lines 62-67. Kato et al. does not expressly disclose compensating for drift by adjusting the time values. VanDeusen et al. discloses adjusting the time stamps of packets based on certain drift metrics.

See Fig. 6, and col. 8, lines 22-40. It would have been obvious to adjust the timing of the packets in Kato et al. using the drift metric adjustments taught by VanDeusen et al.. One would have been motivated to do this because if there are clock problems, then it would prevent overflowing/underflowing if the packets were to be properly adjusted in order to compensate for the drifting conditions.

22. Regarding claim 3, 5, and 39, the linear lines c-d and a-b would inherently have to vary from being linear if they are to accommodate for drift.

23. Regarding claim 38, Kato et al. discloses that Fig. 3 shows an example for a constant bit rate system. See col. 3, lines 33-37.

24. Regarding claims 35 and 42, Kato et al. discloses the use of MPEG standards as a possible application. See col. 2, lines 23-46.

25. Regarding claim 37, as mentioned previously, the relationship between the lines a-b, c-d, and e-f depend on the buffer size.

26. Regarding claim 40, through the rate of the input stream and the buffer capacity/occupancy, it can be determined what the buffer delay is going to be. Thus, it is inherent in the carrying of the input stream that it will also include the information needed to find buffer delay information.

27. Regarding claim 41, the data stream, as mentioned previously, is a video stream. See col. 2, lines 23-34.

Response to Arguments

28. Applicant's arguments filed January 2, 2004 regarding the 112 rejection have been fully considered but they are not persuasive. Regarding Applicant's response to Examiner's argument

concerning the 112 rejection, the Examiner respectfully disagrees. The Examiner has carefully read Applicant's explanation and the quoted passages from the specification. Although the Examiner has a better understanding of the claimed invention after reading Applicant's response, the Examiner does not believe that one of ordinary skill in the art would have necessarily equated "lowest bit occurrence" with the lower limit 401 described in the specifications on pages 9-11. The words "lowest," "bit," and "occurrence" all appear in the passages cited by Applicant, but it is not clear that one would synthesize these disparate terms and conclude that it meant the lower limit 401. As mentioned before, the first time "lowest bit occurrence" is mentioned is in direct relation to "highest bit occurrence," which does not give much indication that this would mean it to be the lower limit 401. The Examiner also does not believe that one of ordinary skill would equate the word "occurrence" with "transfer." There is no evidence in the cited sections that one would believe that the definition of "occurrence" would be synonymous with "transfer." Thus, for the foregoing reasons, the claims 1-35 and 43-60 fail to meet the enablement requirement.

29. Applicant's arguments regarding the prior art rejections with respect to claims 1-16, 19, 32-48 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

30. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Auyeung et al. (US 5,619,341) and Blanchard (US 5,913,031) disclose systems that try to prevent overflow and underflow.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy Lee whose telephone number is (703)305-7349. The examiner can normally be reached on M-F, 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (703)305-4744. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TLL
Timothy Lee
February 19, 2004

HASSAN KIZOU
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600